VERMONT
AGENCY OF TRANSPORTATION

FACT SHEET

2019 Research Showcase & STIC Annual Meeting

Intercity Mode and Destination Decision-making by Vermonters

PROJECT TITLE

Intercity Mode and Destination Decision-making by Vermonters

STUDY TIMELINE

2014-2019

INVESTIGATORS

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VTRANS CONTACTS

N/A

This fact sheet was prepared for the 2019 VTrans Research Showcase & STIC Annual Meeting held at the Dill Building in Berlin, VT, on September 11, 2019 from 8:30 am– 1:00 pm.

Fact sheets can be found for additional projects featured at the 2019 Symposium at http://vtrans.vermont.gov/planning/research/2019showcase

Additional information about the VTrans Research Program can be found at http://vtrans.vermont.gov/planning/research

Additional information about the VTrans STIC Program can be found at http://vtrans.vermont.gov/boards-councils/stic

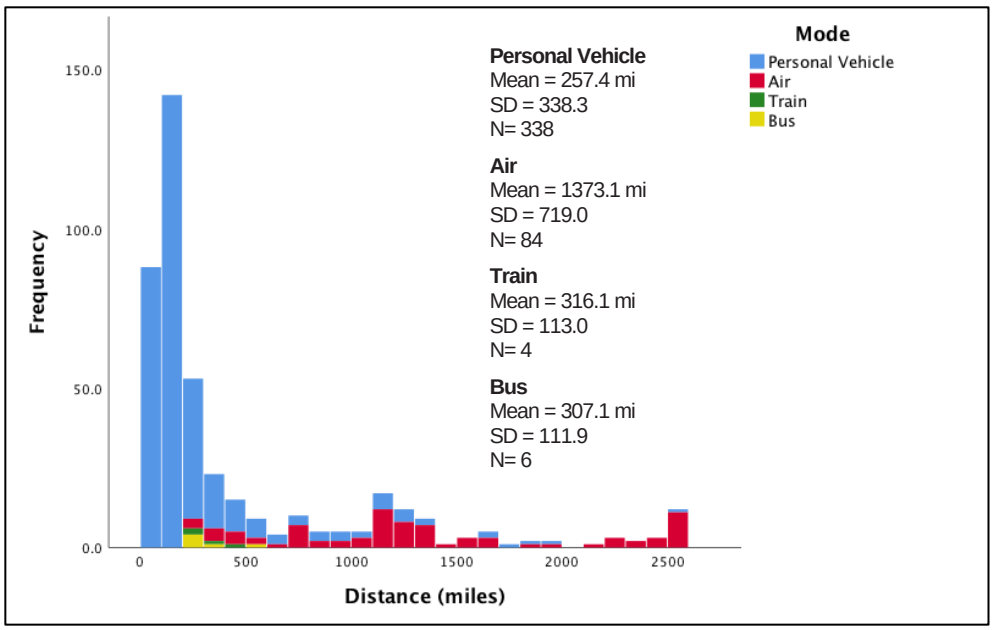
Introduction

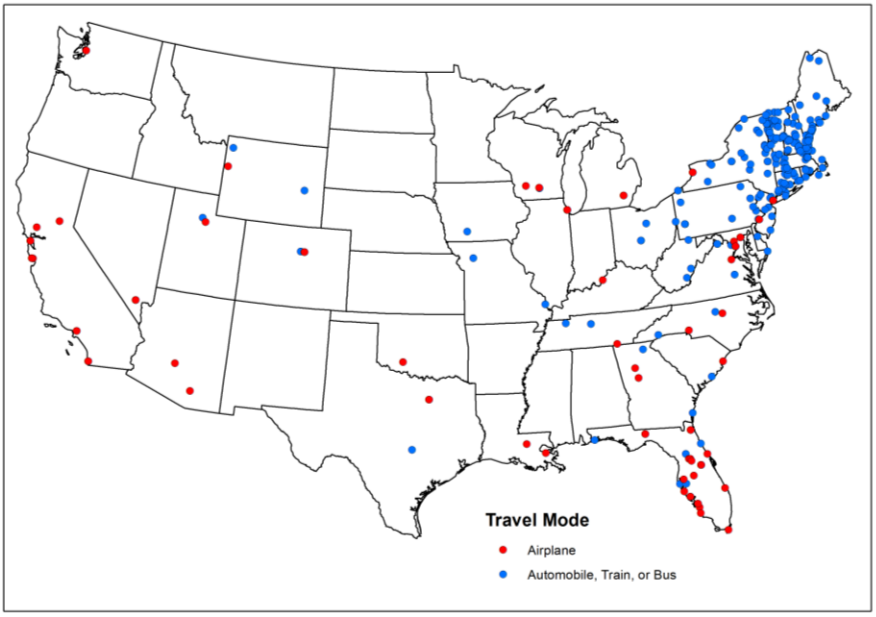
The goal is to study the factors affecting mode choice including participants' propensity to make simultaneous or bundled decisions on mode and destination location for intercity out-of-town trips. Data from a Vermont telephone survey is used to understand how travel demand models might be improved.

Process	% of People (3% missing)	Decision 1	Decision 2	Decision 3	Bundled
1	2%	Purpose	Destination	Mode	NO
2	1%	Purpose	Mode	Destination	NO
3	71%	Purpose Destination Mode			YES
4	9%	Purpose	Mode Destination		YES
5	14%	Purpose Destination	Mode		YES

Methodology

This project utilized the Vermonter Poll survey data as well as attributes of the intercity overnight trips between home origins and destinations estimated using GoogleMaps and FAA's DB1B data. The 2017 Vermonter Poll was conducted on February 21-28 (response rate 20.1%) with 613 valid responses state-wide in Vermont. The measures of impedance or accessibility between each respondent's home origin and their overnight personal trip destination was needed. For surface personal vehicles, uncongested highway travel time and marginal gasoline costs were desired. We used Google API with a 2019 early Sunday morning time to ensure uncongested travel times. For air travel, the origin airport access time, airline ticket cost, total air travel time (including access, egress, airport time and transfers), and estimated total cost were calculated from FAA datasets. Because the logic involved selecting the closest 3 airports to each ultimate origin (county centroid in Vermont) and destination (city center), it was necessary to select a subset of 140 commercial airports in the continental US.





Conclusions

Our findings reinforce the idea that destination and mode are perceived of as a bundle or package decision. Traditional destination and mode choice models (where distance is the only generic predictor variable considered and no mode-specific variables are considered) are too simplistic. For a given destination, the relationship between driving and flying times seems to be the key factor influencing mode choices. This is not unexpected, but it is usually unmeasured and the method used here to approximate flying accessibility was successful.

Potential Impacts and VTrans Benefits

This study provided documentation to support new travel demand forecasting models that jointly model destinations and mode choices for longer trips. Recent estimates suggest that such intercity long-distance trips may account for 30% of passenger miles of travel in the United States and are, therefore, responsible for a significant portion of congestion, emissions and even transportation impacts on well-being. Improving the external traffic in the VTrans Travel Demand Model is an on-going activity between VTrans and UVM.